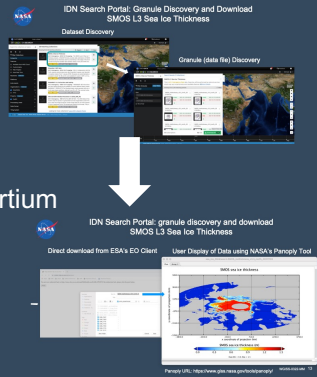
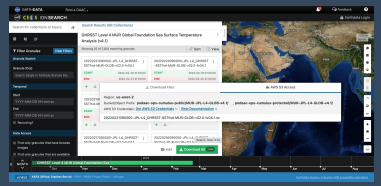
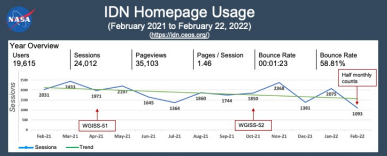
International Directory Network (IDN) WGISS-53 Summary

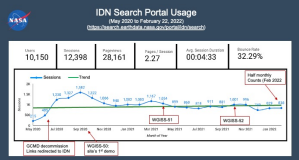
- CEOS/IDN Collaborations
  - ESA/FedEO Updates: Added FedEO CMR Provider ID for FedEO consortium
  - NOAA TPIO and GCMD keywords: Added new Ocean keywords
  - NOAA GHRSST Datasets: Added CMR NOAA_NCEI GHRSST Provider ID for CWIC consortium
  - ChinaGEOSS, NRSCC, and CCMEO Datasets: Added NRSCC and New CMMEO CMR Provider IDs CWIC consortium
- IDN Upgrades
  - IDN Search Portal: granule discovery and download
  - CMR Tagging replaced by Consortiums: to identify CWIC, FedEO, CEOS, and GEOSS.
  - CMR/DraftMMT Progressive Update Validation
  - Platform Facets: Added New Platform Top-level “BASIS” group.
  - UMM-C OrbitParameter and MetadataSpecification: Added orbit Unit and Footprint sub-fields to the schema.
  - IDN Search Portal Cloud Datasets refinement
- IDN Metric
  - IDN Homepage Usage
  - IDN Search Portal
  - Draft Metadata Management Tool (MMT)



- 6 new Keywords were added to the "Basis" level:
  - Air-based Platforms
  - Land-based Platform
  - Living Organism-based Platforms
  - Other
  - Space-based Platforms
  - Water-based Platforms







International Directory Network (IDN) Report

CEOS WGISS-53
Remote Meeting, March 22, 2022

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Outline

- CEOS/IDN Collaborations
  - ESA/FedEO Updates
  - NOAA TPIO and GCMD keywords
  - NOAA GHRSST Datasets
  - ChinaGEOSS, NRSCC, and CCMEO Datasets
- IDN Upgrades
  - IDN Search Portal: granule discovery and download
  - CMR Tagging replaced by Consortiums
  - CMR/DraftMMT Progressive Update Validation
  - Platform Facets
  - UMM-C OrbitParameter and MetadataSpecification
  - IDN Search Portal Cloud Datasets refinement
- IDN Metric
  - IDN Homepage Usage
  - IDN Search Portal
  - Draft Metadata Management Tool (MMT)

I. CEOS/IDN Collaborations

ESA/FedEO Updates

- ESA/FedEO dataset records were re-ingested into CMR/IDN:
  - 163 ESA dataset records were ingested into IDN Provider ESA
    - IDN Search Portal (all ESA dataset records): https://search.earthdata.nasa.gov/portal/idn/search?fdc=ROSCOSMOS!ESA%2FESRIN&fpj=FedEO&as[organization][0]=ESA/ESRIN&as[project][0]=FedEO
  - 53 DLR and 45 VITO dataset records were ingested into new IDN Provider FEDEO
    - IDN Search Portal (FedEO DLR dataset records): https://search.earthdata.nasa.gov/portal/idn/search?fdc=DE%2FDLR
    - IDN Search Portal (FedEO VITO dataset records): https://search.earthdata.nasa.gov/portal/idn/search?fdc=VITO
  - The re-ingest of the ESA/FedEO records was done to support the new CMR Consortiums feature (describe in IDN Upgrades section of presentation).
- IDN has automated CMR ingest between FedEO and IDN.

Reconciling NOAA TPIO and GCMD keywords

- The GCMD/IDN Team has been working with the NOAA Technology, Planning, and Integration for Observation (TPIO) Team and the USGS to align their keywords more closely with the GCMD Keywords.
- There are several science keywords sets that will go through cross-team review. These include: Atmosphere, Oceans, Sun-Earth Interactions, Terrestrial Hydrosphere, Cryosphere, Solid Earth, Human Dimensions, Land Surface, Biosphere, Spectral/Engineering, Agriculture, Climate Indicators
- The Ocean keywords were released on October 29, 2021 as version 12.0. See https://wiki.earthdata.nasa.gov/pages/viewpage.action?pageId=226525497

Note: Keyword groups in blue have reviewed and updated.

NOAA GHRSST Datasets

- NOAA_NCEI CWIC GHRSST dataset records have been re-ingest into a new IDN Provider GHRSSTCWIC to support CMR Consortium feature.
  - 120 NOAA_NCEI CWIC GHRSST dataset records: https://search.earthdata.nasa.gov/portal/idn/search?q=GHRSST&fdc=NOAA%20National%20Centers%20for%20Environmental%20Information
- IDN with periodically update all the NOAA NCEI dataset records from the NOAA Web Accessible Folders (WAF).
- IDN Search Portal query for all NOAA_NCEI collections: https://search.earthdata.nasa.gov/portal/idn/search?q=NOAA_NCEI

ChinaGEOSS, NRSCC, and CCMEO Datasets

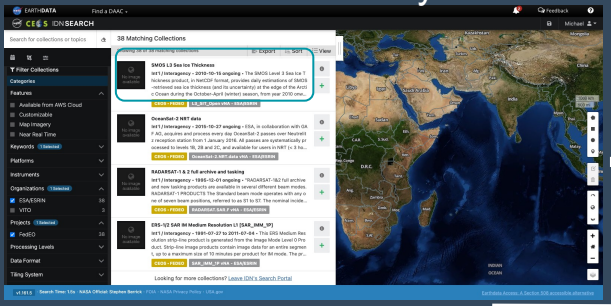
- ChinaGEOSS and NRSCC have been re-ingested into new IDN Provider NRSCC to support CMR Consortiums feature. IDN Search Portals offerings:
  - 5 ChinaGEOSS dataset records:
    - https://search.earthdata.nasa.gov/portal/idn/search?fdc=CN/ChinaGEOSS
  - 24 NRSCC dataset records:
    - https://search.earthdata.nasa.gov/portal/idn/search?q=NRSCC_GLASS

- CCMEO, also, have been re-ingest into new IDN Provider CCMEO
  - 3 CCMEO dataset records:
    - https://search.earthdata.nasa.gov/portal/idn/search?fdc=CA/NRCAN/ESS/GC/CCMEO

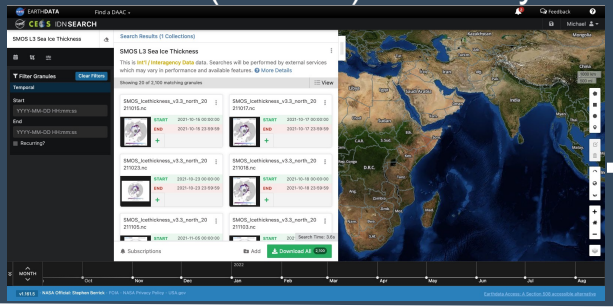
II. IDN Upgrades

IDN Search Portal: Granule Discovery and Download Summary
ESA/FedEO SMOS L3 Sea Ice Thickness

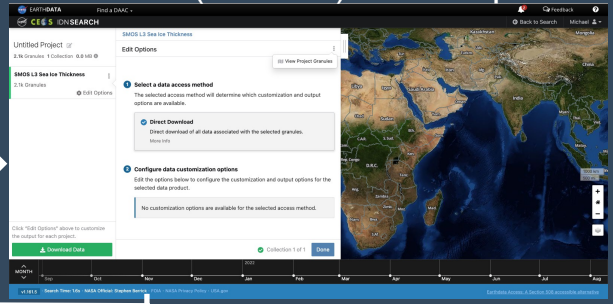
Dataset Discovery



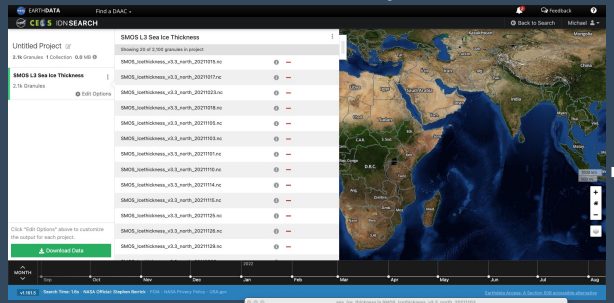
Granule (data file) Discovery



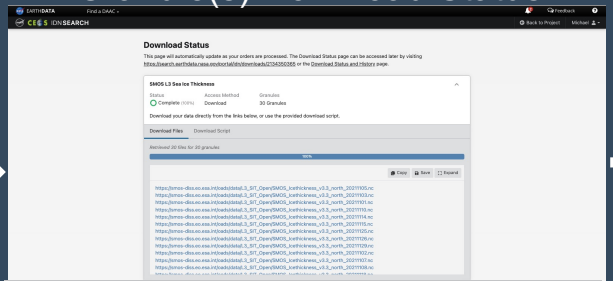
Granule (data file) Order Options



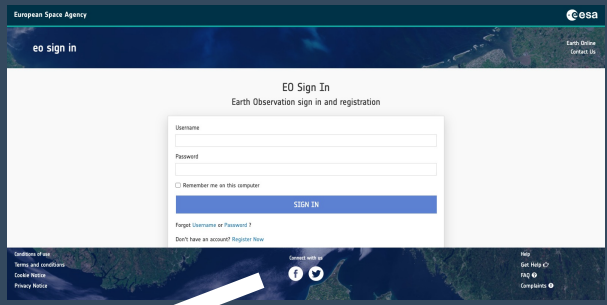
Order Selection Options



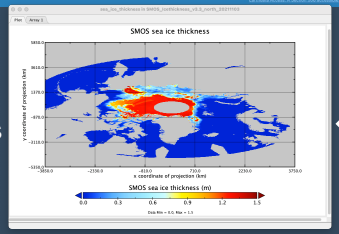
Granule(s) Download Status

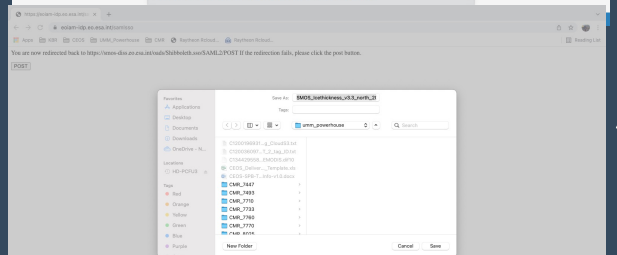


ESA's EO Client



User Display of Data using NASA's Panoply Tool

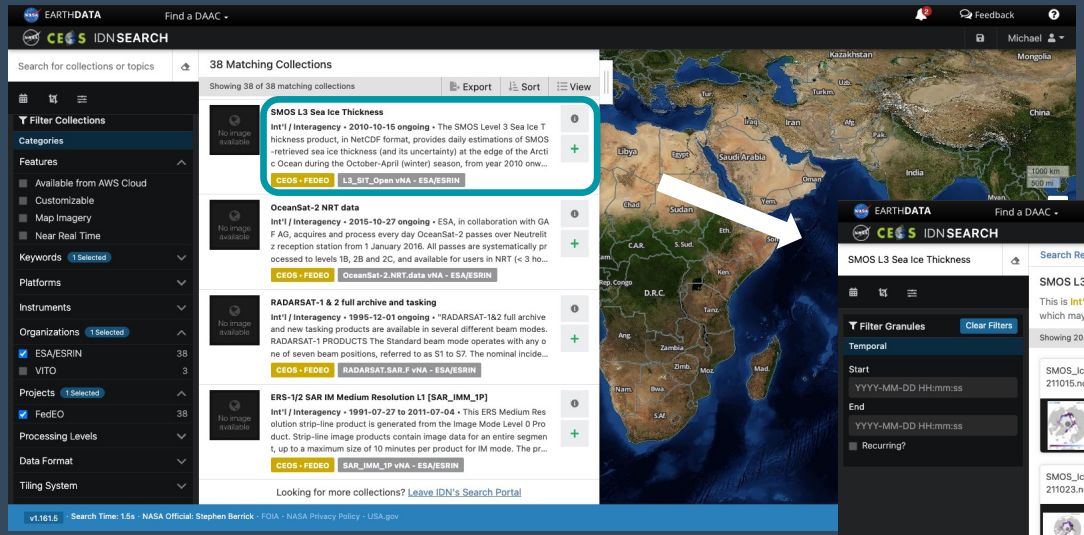




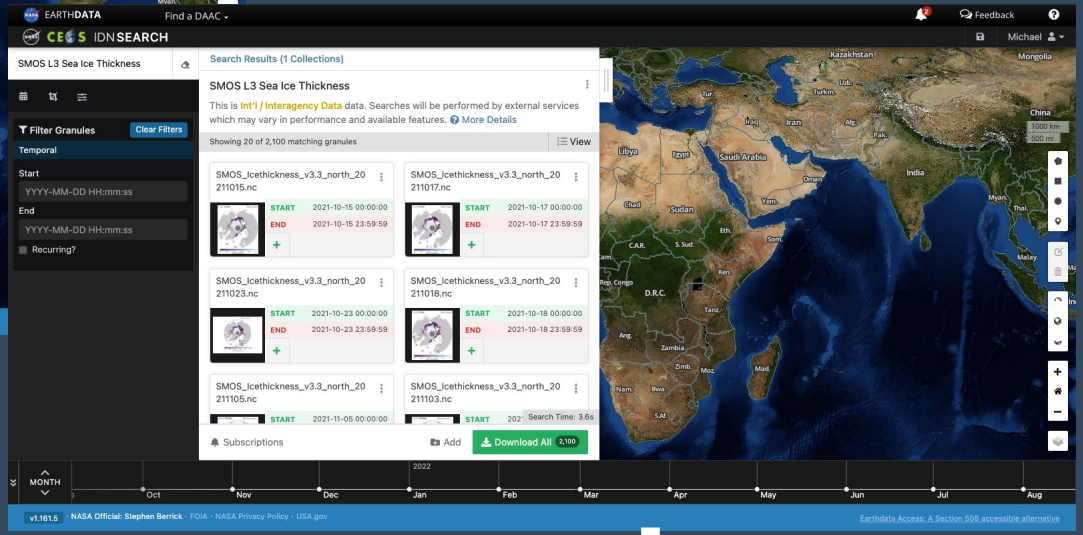
Direct download from ESA's EO Client

IDN Search Portal: Granule Discovery and Download ESA/FedEO SMOS L3 Sea Ice Thickness (continue)

Dataset Discovery

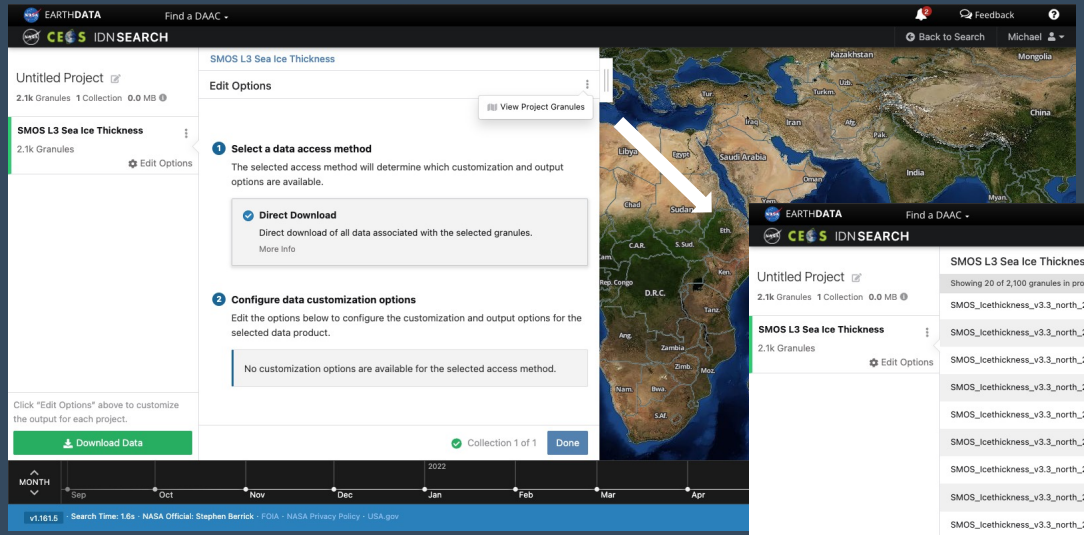


Granule (data file) Discovery

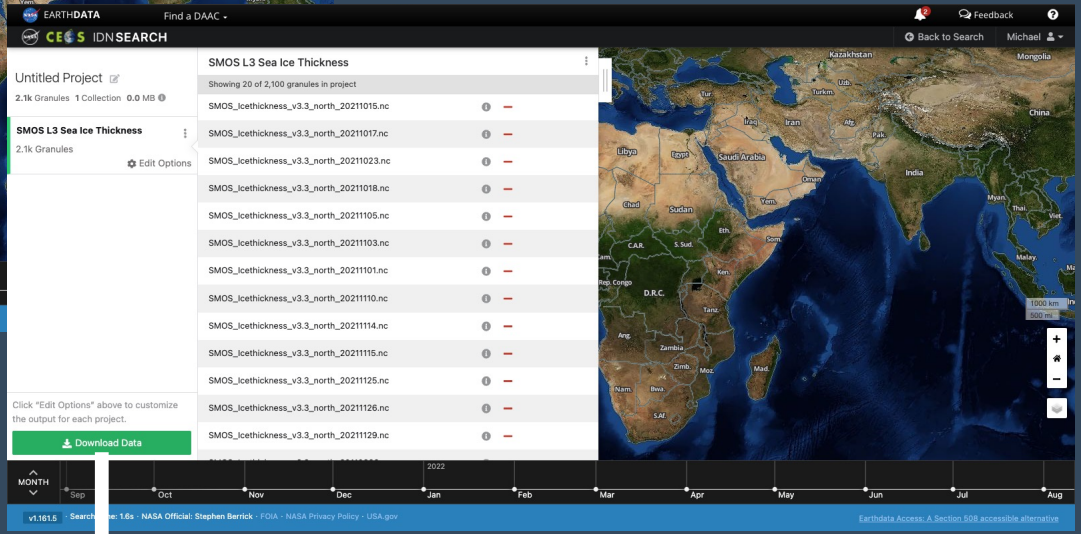


IDN Search Portal: Granule Discovery and Download ESA/FedEO SMOS L3 Sea Ice Thickness (continue)

Granule (data file) Order Options

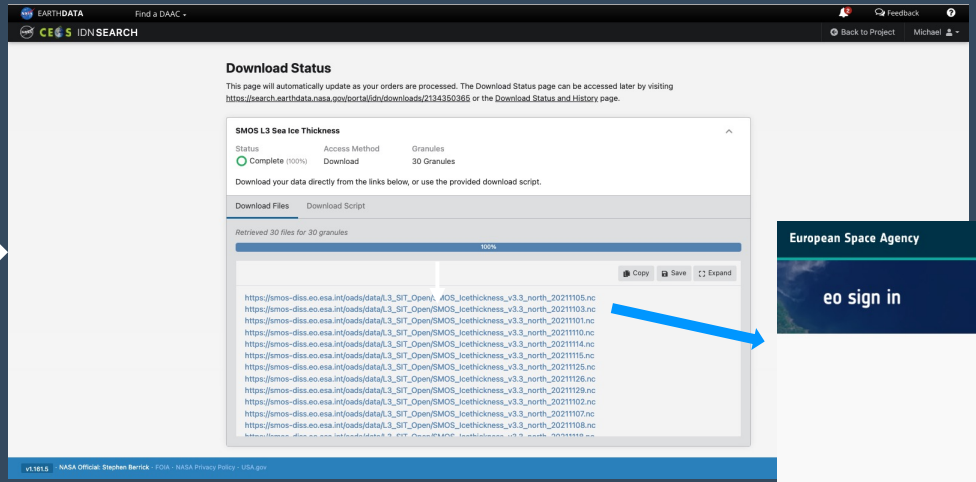


Order Selection Options

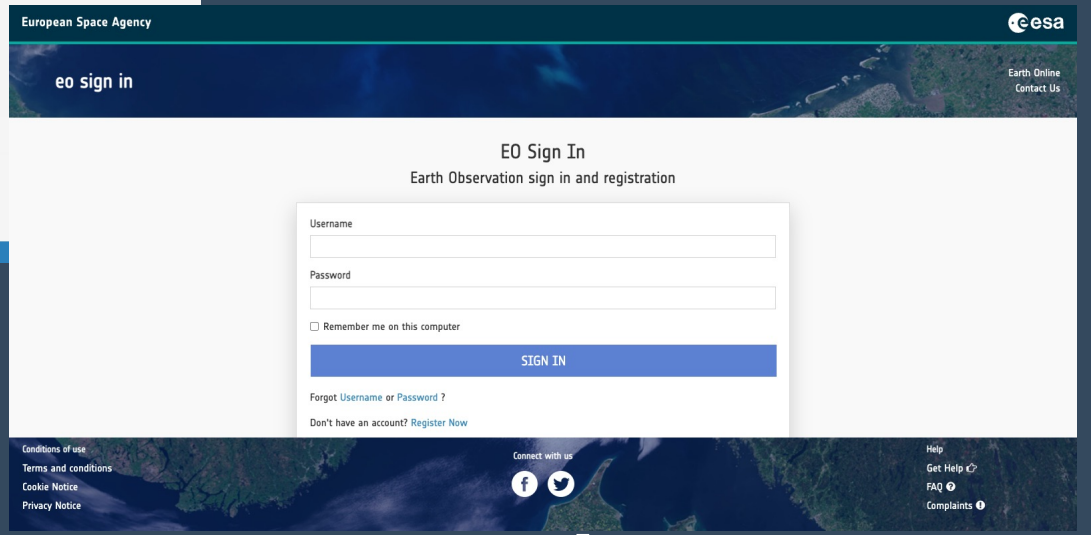


IDN Search Portal: Granule Discovery and Download ESA/FedEO SMOS L3 Sea Ice Thickness (continue)

Granule(s) Download Status

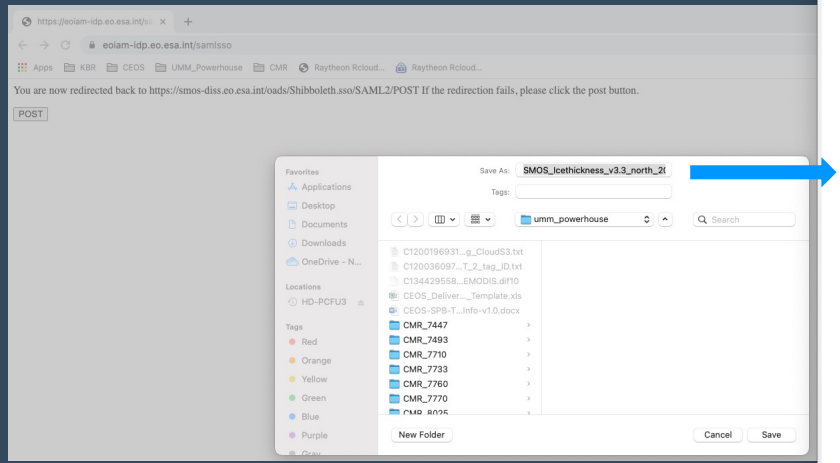


ESA's EO Client



IDN Search Portal: granule discovery and download ESA/FedEO SMOS L3 Sea Ice Thickness (continue)

Direct download from ESA's EO Client



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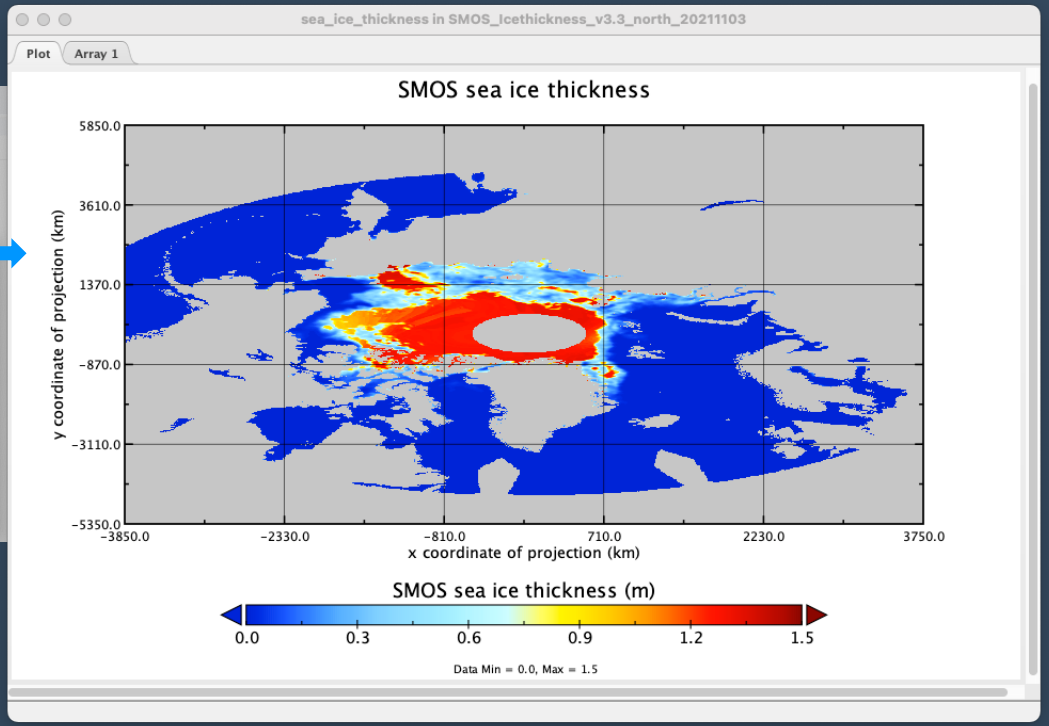


Panoply URL: https://www.giss.nasa.gov/tools/panoply/

CMR Tagging replaced by Consortiums

What is a Consortium?

- A uniform and simple means to determine whether a dataset belongs to any one of the following agency/agency categorizations/international organizations. The IDN Search Portal displays "badges" below the dataset titles and descriptions in the search results indicating an association with a Consortium.
    - All publicly available CMR Provider IDs were assigned to a Consortium (or multiple Consortiums) based upon the Provider's relation to the Consortium

Consortium Names	Descriptions
EOSDIS	Datasets managed by Earth Observing System Data and Information System (EOSDIS).
CWIC	CEOS non-NASA providers' datasets with Granule-level inventory interrogated using Federated OpenSearch through CMR's CEOS WGISS Integrated Catalog (CWIC) infrastructure.
FEDEO	ESA partners' datasets with Granule-level inventory interrogated using Federated OpenSearch through Federated Earth Observation Gateway (FedEO).
CEOS	Datasets from all CEOS Providers including CWIC and FedEO but not NASA EOSDIS.
GEOSS	A dataset is GEOSS Data-CORE-compliant if the data it describes is "free and open".

CMR Tagging replaced by Consortiums (Continue)

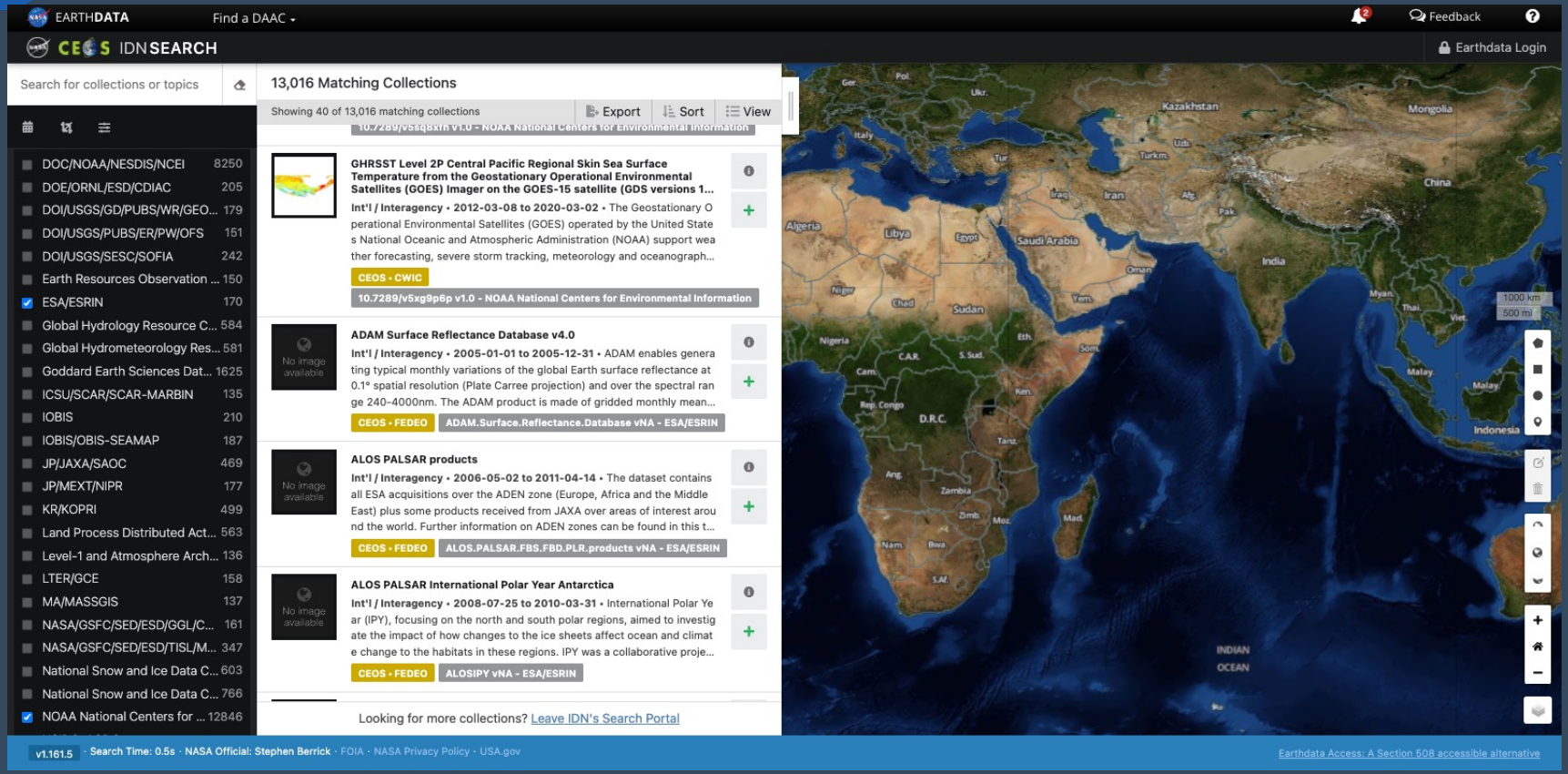
- All EOSDIS NASA data sets are assumed to be GEOSS Data-CORE-compliant "free and open" and have the Consortium GEOSS *except where indicated by data providers. Provider action is only needed for new EOSDIS data that is not free and open.*
  - GEOSS Data Collection of Open Resources for Everyone (GEOSS Data-CORE): is a distributed pool of documented datasets with full and open unrestricted access at no more than the cost of reproduction and distribution.
- All other IDN Partner data sets are not set to Consortium GEOSS.
- If a dataset is not GEOSS Data-CORE-compliant a new Boolean sub-field “FreeAndOpen” has been added to the Use Constraints field. Action *is* needed if an IDN data set is “free and open” to add it to the GEOSS consortium.
  - UMM Example:

```
"UseConstraints": {
    …
    "FreeAndOpenData": false}
```

  - DIF-10 Example:

```
<Use_Constraints>
    …
    <Free_And_Open_Data>false</Free_And_Open_Data>
</Use_Constraints>
```

View Badges in the IDN Search Portal



Provider IDs and their associated Consortiums

- CMR Provider IDs URL: https://cmr.earthdata.nasa.gov/ingest/providers?pretty=true

FEDEO Consortium

{ "provider-id" : "ESA", …
"consortiums" : "CEOS FEDEO" }
{ "provider-id" : "FEDEO", …
"consortiums" : "CEOS FEDEO" }

CWIC Consortium

{ "provider-id" : "ISRO", …
"consortiums" : "CEOS CWIC" }
{ "provider-id" : " NRSCC", …
"consortiums" : "CEOS CWIC" }
…

LPDAAC_ECS Consortium

{ "provider-id" : "LPDAAC_ECS", …
"consortiums" : "EOSDIS GEOSS" }
{ "provider-id" : " PODAAC ", …
"consortiums" : "EOSDIS GEOSS" }
…

- Why this new Consortium feature will improve identifying CWIC, FedEO, CEOS, NASA EOSDIS, and GEOSS datasets:
  - CMR Tagging is a manual process and can be overwritten and undone with re-ingest; automating consortium assignment via provider reduces human error and makes search results more consistent.
  - CMR Tagging is no longer needed to identify: CWIC, FedEO, and CEOS datasets

CMR Search API Consortiums Queries

- CMR Search API URL query for associated Consortiums:
  - CWIC (non-NASA) query:
    https://cmr.earthdata.nasa.gov/search/collections?consortium=CWIC&page_size=400&pretty=true
  - FedEO query:
    https://cmr.earthdata.nasa.gov/search/collections?consortium=FEDEO&page_size=400&pretty=true
  - NASA EOSDIS query:
    https://cmr.earthdata.nasa.gov/search/collections?consortium=eosdis&pretty=true
  - CEOS query:
    https://cmr.earthdata.nasa.gov/search/collections?consortium=ceos&consortium=eosdis&pretty=true

CMR/DraftMMT Progressive Update Validation

- DraftMMT and the CMR Ingest API will now permit users to progressively fix errors in existing datasets metadata.
  - Example: in the case where metadata validation rules have evolved since initial ingest and/or fixing all existing dataset record errors may break internal workflows).
    - Applies to existing datasets metadata records only.
    - New dataset metadata records must still meet all validation criteria on ingest.
    - Only subject to fields whose validation status have changed over time/that haven't always been required.
    - Datasets must still pass XML and JSON validation.
    - CMR and DraftMMT validation will not permit introducing additional errors (i.e. CMR and DraftMMT will permit record updates to ingest with errors and warnings, providing the total number of errors at ingest is less than or equal to the total number of errors when editing began).
    - CMR and DraftMMT will provide errors/warning messaging for fields that do not pass validation checks.
    - CMR will log when datasets are updated with remaining errors. Log example:

<?xml version="1.0" encoding="UTF-8"?><result><concept-id>C1200xxxxxx-XXXX</concept-id><revision-id>5</revision-id><warnings>After translating item to UMM-C the metadata had the following issue(s): #: required key [ProcessingLevel] not found. #: required key [CollectionProgress] not found.</warnings><existing-errors>***Existing Errors entered here.***</existing-errors></result>

Platform Facets

- Based on an ESDIS Standards Office (ESO) review; Improvements have been made to the GCMD Platform Keywords to help improve the drill down and searches on Platform Facets for the EarthData Search Clients (EDSC), IDN and CWIC Search Portals.
- A new Platform Keyword Top-Level called "Basis" was added to the grouping.
  - 6 new Keywords were added to the "Basis" level:
    - Air-based Platforms
    - Land-based Platform
    - Living Organism-based Platforms
    - Other
    - Space-based Platforms
    - Water-based Platforms

New Platform Facets' Values

- Air-based Platforms
  - Ballons
  - Dropwindsones
  - Jet
  - Propeller
  - Rotorcraft/Helicopter
  - Rockets
  - Sounding Rockets
  - Uncrewed Aerial Vehicles
- Land-based Platform
  - Field Sites
  - Permanent Land Sites
  - Vehicles
- Land-based Platform
  - Field Sites
  - Permanent Land Sites
  - Vehicles
- Living Organism-based Platforms
  - Living Organism

New Platform Facets' Values (Continue)

- Other
  - Charts
  - Maps
  - Models
  - Photographs
  - Physical Models
  - Reports
- Space-based Platforms
  - Earth Observation Satellites
  - Interplanetary Spacecraft
  - Navigation Satellites
  - Solar/Space Observation Satellites
  - Space Stations/Crewed Spacecraft
- Water-based Platforms
  - Buoys
    - Moored
    - Unmoored
  - Fixed Platforms
    - SubSurface
    - Surface
  - Vessels
    - SubSurface
    - Surface
  - Uncrewed Vehicles
    - SubSurface
    - Surface

GCMD Keywords and Search API URLs

- Keyword grouping structure:
  - Old grouping:
    - Category | ***Series_Entity*** | Short_Name | Long_Name | UUID
  - New grouping:
    - ***Basis*** | Category | ***Sub_Category*** | Short_Name | Long_Name | UUID
    - Series_Entity was changed to Sub_Category.
- CMR Search API (on User Acceptance Test):
  https://cmr.uat.earthdata.nasa.gov/search/collections?pretty=true&platforms_h%5B0%5D%5Bbasis%5D=Space-based+Platforms
- CMR Search API (Production) future:
  https://cmr.earthdata.nasa.gov/search/collections?pretty=true&platforms_h%5B0%5D%5Bbasis%5D=Space-based+Platforms

Platform Facets Actions Needed

- IDN Metadata providers creating new metadata records will need to use the new "Category" values in the UMM-C/PlatformType "Type" field
  - Validation of records for new "Category" values can be done with CMR ingest API validation feature “Cmr-Validate-Keywords=True” https://cmr.earthdata.nasa.gov/ingest/site/docs/ingest/api.html#headers
  - Support for new "Type" keywords is built in if using DraftMMT to create a new dataset record.
  - Metadata providers updating existing metadata where the "Category" values in the UMM-C/PlatformType "Type" field have changed can update their metadata over time as Progressive Update permits
  - UMM-C JSON examples:

Old Platform Entry

```
{ "Type" : "Aircraft",
  "ShortName" : "NASA DC-8",
  "LongName" : "NASA Douglas DC-8",
 …} ]
 }
```

New Platform Entry

```
{ "Type" : "Jet",
  "ShortName" : "NASA DC-8",
  "LongName" : "NASA Douglas DC-8",
 …} ]
 }
```

UMM-C Field Updates (Future)

- OrbitParameters
  - Problems:
    - Users were not sure how to document measurement units in the Description field(s).
    - No Footprints field to document values.
  - Solutions:
    - New Orbit unit and Footprint fields were added to the UMM-C schema.

UMM-C JSON example

```
"OrbitParameters" : {
 "SwathWidth" : 390.0,
 "SwathWidthUnit" : "Kilometer",
 "Footprints" : [{
  "Footprint": 100,
  "FootprintUnit": "Kilometer",
  "Description" : "The leading footprint."
 }, {
  "Footprint": 150,
  "FootprintUnit": "Kilometer",
  "Description" : "The trailing footprint."
 }],
 "Period" : 98.0,
 "PeriodUnit": "Decimal Minute",
 "NumberOfOrbits" : 1,
 "InclinationAngle" : 98.0,
 "InclinationAngleUnit": "Degree",
 "StartCircularLatitude": 0,
 "StartCircularLatitudeUnit":"Degree"
},
```

Note: Fields are in ***Bold, Italic*** types and →

UMM-C Field Updates (Continue)

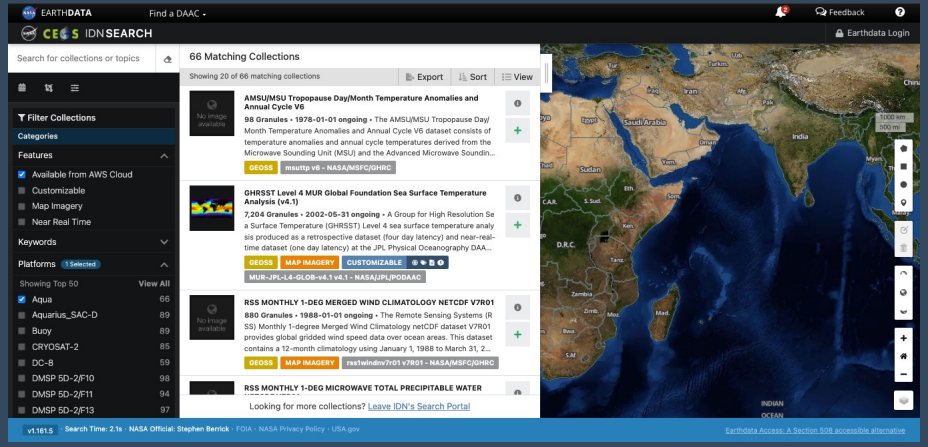
- MetadataSpecification
  - Problem:
    - Metadata providers do not have an easy way to recognize which UMM-C schema version was used to encode their dataset metadata records.
  - Solutions:
    - Allows a CMR data provider to easily specify and recognize which UMM-C schema version is being used for a specific dataset record.
  - This will be a required element and all of the sub elements will be required.
    - When using Draft MMT a provider will not see top level MetadataSpecification element as the MMT will fill that in automatically.
    - If records are directly ingested to the CMR element (and all sub-elements) must be provided. If they are not provided the CMR will return errors to the CMR data provider. Already required in DIF-10.

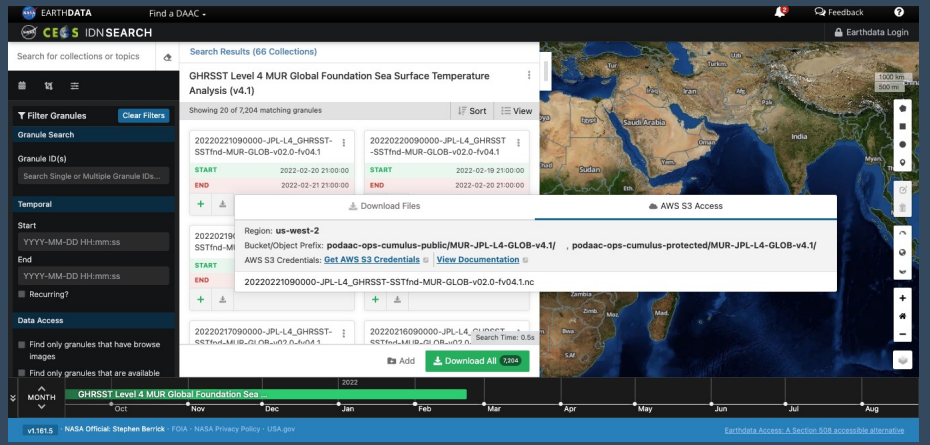
UMM-C JSON example

```
"MetadataSpecification": {
  "URL": "https://cdn.earthdata.nasa.gov/umm/collection/v1.17",
  "Name": "UMM-C",
  "Version": "1.17"
 }
```

IDN Search Portal Cloud Datasets refinement

- Using the IDN Search Portal directly searching for data on AWS Cloud.
  - By clicking on the Features Facet and ”Available from AWS Cloud”
  - The user selects the desired dataset then the resulting data files are displayed.
  - Clicking on the download image:
    - the user selects AWS S3 Access and links to ”Get AWS S3 Credentials” and “View Documentation (helpful Sample Response and script examples)” are offered) to the user.





III. IDN Metrics

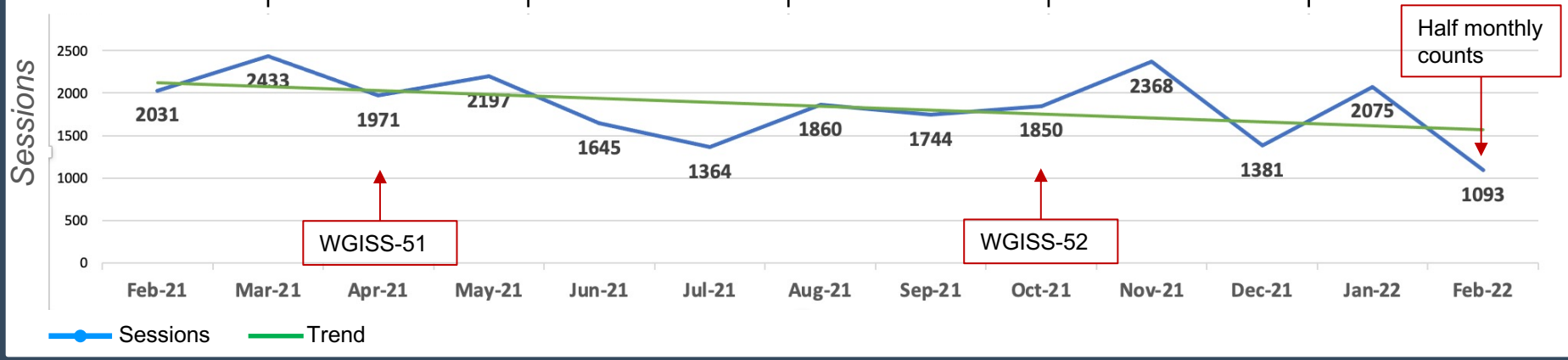
IDN Homepage Usage

(February 2021 to February 22, 2022)

(https://idn.ceos.org/)

Year Overview

Users	Sessions	Pageviews	Pages / Session	Bounce Rate	Bounce Rate
19,615	24,012	35,103	1.46	00:01:23	58.81%

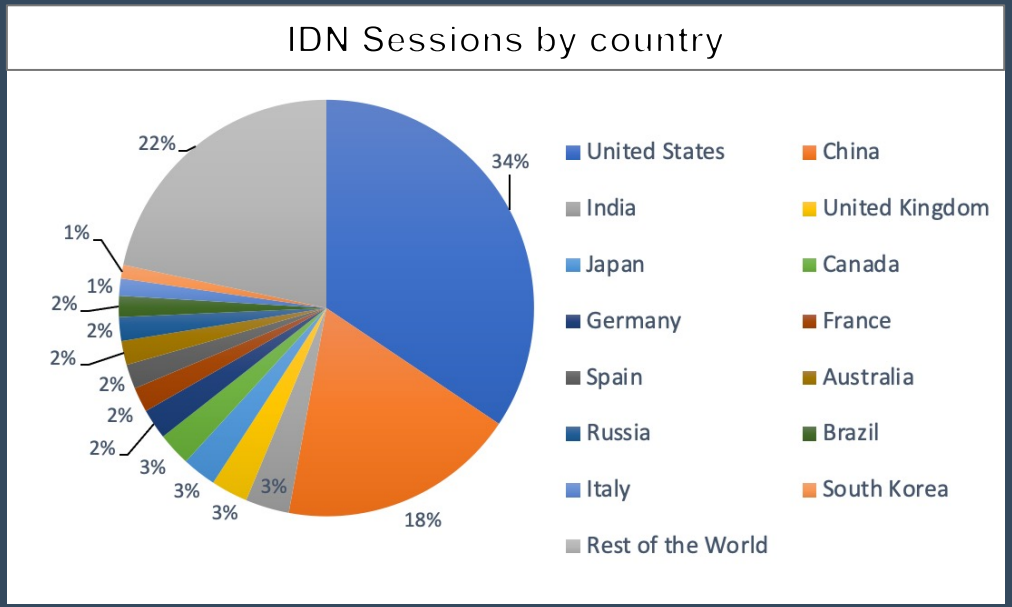


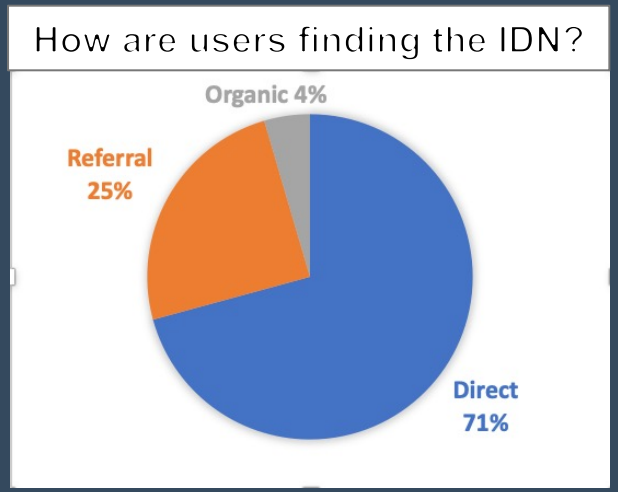
- **User**: An individual person browsing the website.
- **Sessions**: A single visit to the website, consisting of one or more pageviews.
- **Pageviews**: A pageview is reported when a page has been viewed by a user on the website.
- **Pages/Session**: the average number of pageviews in each session.
- **Avg. Session Duration**: how long users are spending on your website.
- **Bounce Rate**: is the percentage of sessions with only one interaction

IDN Homepage Usage (continue)

February 2021 to February 22, 2022

https://idn.ceos.org/



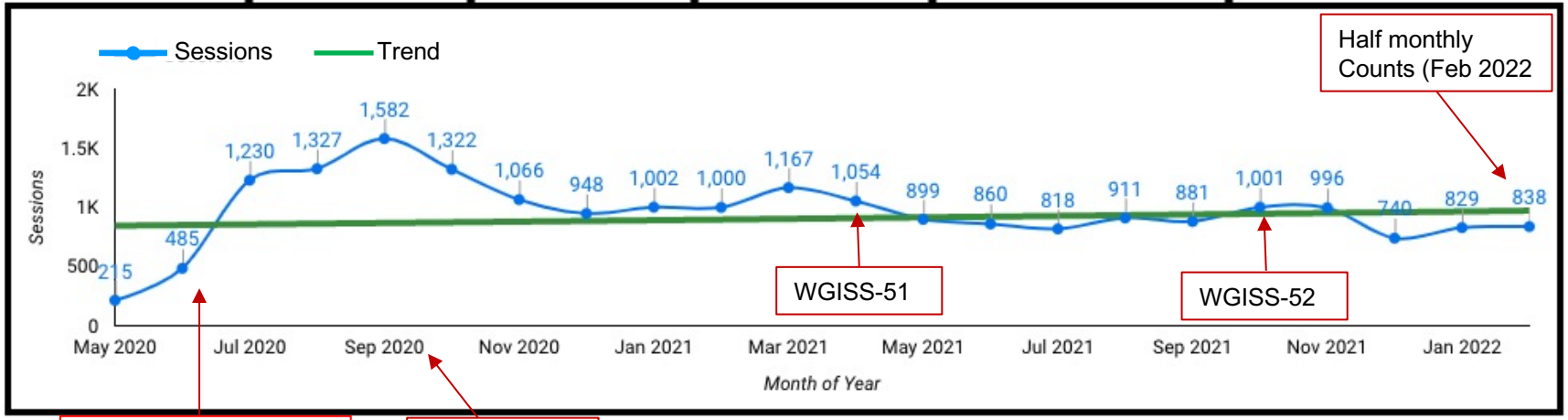


- **Direct**: includes people who typed your website's URL into their browser or clicked a link in an email application.
- **Referral:** A referral is reported when a user clicks through to your website from another third-party website.
- **Organic**: refers to people clicking on a free link from a search results page. For example, people clicking through to your website from a free result on a Google search results page.

IDN Search Portal Usage

(May 2020 to February 22, 2022)
(https://search.earthdata.nasa.gov/portal/idn/search)

Users	Sessions	Pageviews	Pages / Session	Avg. Session Duration	Bounce Rate
10,150	12,398	28,161	2.27	00:04:33	32.29%



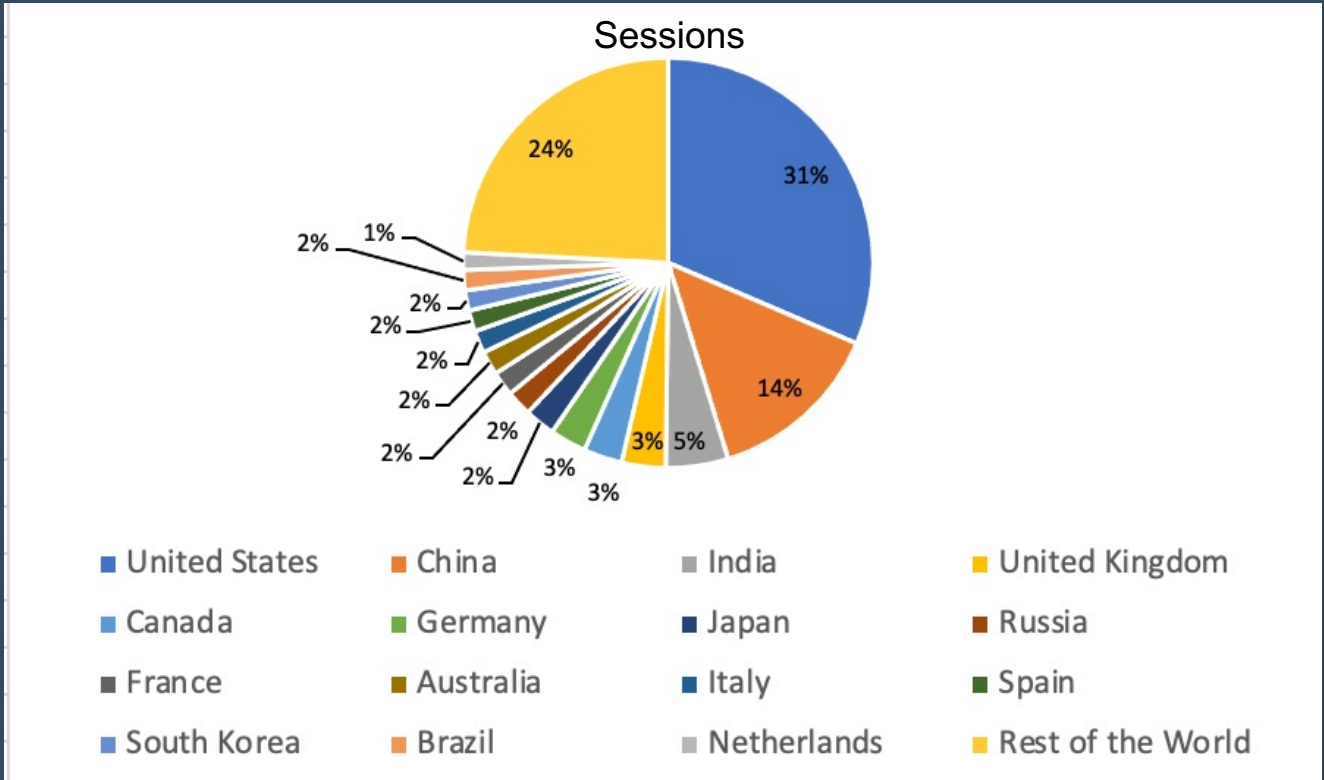
IDN Search Portal Usage

(February 2021 to February 22, 2022)
(https://search.earthdata.nasa.gov/portal/idn/search)

Page	Users	Sessions	Pageviews
search.earthdata.nasa.gov/portal/idn/search	9888	10920	17913
search.earthdata.nasa.gov/portal/idn/search/granules	4216	750	7351
search.earthdata.nasa.gov/portal/idn/projects	796	73	1283
search.earthdata.nasa.gov/portal/idn/search/granules/collection-details	774	128	779
search.earthdata.nasa.gov/portal/idn/downloads	694	123	951
search.earthdata.nasa.gov/portal/idn/search/granules/granule-details	364	17	71
search.earthdata.nasa.gov/portal/idn/preferences	25	1	18
search.earthdata.nasa.gov/portal/idn/contact_info	14	0	4
search.earthdata.nasa.gov/portal/idn/subscriptions	18	0	5
Total	16789	12012	28375

IDN Search Portal Usage

(February 2021 to February 22, 2022)
(https://search.earthdata.nasa.gov/portal/idn/search)



Draft MMT Usage

https://draftmmt.earthdata.nasa.gov

DraftMMT Usage from September 2021 to February 2022.

User	Unique Login	Total Logins
IDN Metadata Author	32	153

Break down of Drafts created, submitted, and approved.

	Created	Submitted	Approved
New Draft Proposals	62	47	47
Update Collections	37	32	32

- **Draft MMT will only save unsubmitted collection metadata for 30 days.**

Questions

Please provide questions/comments to:

michael.p.morahan@nasa.gov (KBR)
valerie.dixon@nasa.gov (NASA)

Background Slides

Useful Links

- **International Directory Network (IDN)**
  - https://idn.ceos.org/
- **International Directory Network (IDN) Search Portal**
  - https://search.earthdata.nasa.gov/portal/idn/search
- **EarthData Login**
  - https://urs.earthdata.nasa.gov/home
- **Draft MMT**
  - https://draftmmt.earthdata.nasa.gov/
  - **Draft Metadata Management Tool (dMMT) User's Guide**
    - https://wiki.earthdata.nasa.gov/display/CMR/Draft+Metadata+Management+Tool+%28dMMT%29+User%27s+Guide

Useful Links (continue)

- **GCMD Keywords**
  - https://earthdata.nasa.gov/earth-observation-data/find-data/gcmd/gcmd-keywords
- **GCMD Keyword Viewer**
  - https://gcmd.earthdata.nasa.gov/KeywordViewer/
- **New KMS URLs**
  - GET Capabilities
    - https://gcmd.earthdata.nasa.gov/kms/
  - All Science Keyword in CSV format
    - https://gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/sciencekeywords?case=native&format=csv

Useful Links (continue)

- **UMM-C, UMM-G, UMM-S, UMM-T, UMM-V Documents**
  - https://wiki.earthdata.nasa.gov/display/CMR/CMR+Documents
- **CMR Collection Metadata Schemas**
  - https://git.earthdata.nasa.gov/projects/EMFD
- **CMR Search API**
  - https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html
- **CMR OpenSearch Documentation**
  - https://cmr.earthdata.nasa.gov/opensearch/home/docs

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